

REMARKS / ARGUMENTS

Claims Rewritten

In response to the Office Action dated September 7, 2004, applicant has cancelled all previously presented claims and has submitted new independent claims 513, 552, 585, and claims dependent thereon. These newly submitted claims conform to applicant's Response to Restriction Requirement dated August 28, 2003 in which applicant elected "Species I for 3-dimensional games classified in class 463, subclass 32 ... in which two communicating microprocessors both generate 3-dimensional game worlds containing player-controlled characters with plural body parts."

Newly submitted claim 513 includes all of the substantive limitations in previously examined claim 430 referenced in the Office Action dated September 7, 2004. Claim 513 is further limited to use of a touch screen as suggested in previously examined dependent claim 466 and others, to more clearly define the invention. Applicant submits that new claims 513, 552, 585, and claims dependent thereon are non-obvious over the references cited in the last Office Action as argued below, without reliance on the touch screen limitation.

In the newly submitted claims, the expression "3-dimensional" has the same meaning as that used, for example, in US patent 6,139,433 titled "Video Game System and Method With Enhanced Three-Dimensional Character and Background Control Due to Environmental Conditions."

Claim Rejections - 35 USC §101

In the Office Action dated September 7, 2004, the Examiner rejected claims 410, 419, 479, and 506 under 35 USC 101, as being directed to non-statutory subject matter; specifically “finger of a human operator”.

The rejected claims have been cancelled and the non-statutory phrase is not present in the new claims. It is understood that manually operated electronic components such as button switches and touch screens are typically operated by an operator’s finger, fingers, hand, or handheld objects.

Claim Rejections - 35 USC §103

In the Office Action dated September 7, 2004, the Examiner rejected claims 375 – 512 under 35 USC 103(a), as being unpatentable over Fujimoto et al (US 6,238,291) in view of Miyamoto et al (US 6,139,433) in further view of Sawano et al (US 6,544,126) which are herein referred to as ‘291, ‘433, and ‘126 respectively.

Fujimoto ‘291 teaches a Nintendo 64 (game system 100 in Fig. 1) containing a first processor (11 in Fig. 5), a first graphical processor (16), a TV display (600), and is digitally connected to a separately housed portable game system, a Gameboy (400) containing a second processor (431 in Fig. 6), an LCD processor (433), and discrete LCD display devices (401). Fujimoto ‘291 is silent regarding 3-D game worlds, 3-D characters having plural body parts, and touch screens.

The related application of Miyamoto '433 teaches the ability of the Nintendo 64 (Fig. 1 in '433) to generate 3-D graphics and 3-D characters composed of plural body parts which are displayed on a display device (Figures 4, 23, 26, 33 & Abstract). According to the Examiner, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the 3-D capabilities of the Nintendo 64 game system as demonstrated in Miyamoto '433, into the system of Fujimoto '291, in order to offer the user greater visual detail and to maintain users interest in the gaming device.

Although incorporating the 3-D capabilities of the Nintendo 64 game system (as shown in Miyamoto '433) into the Nintendo 64 system of Fujimoto '291 is implicit in the design, there is no suggestion in either '433 or '291 that the 3-D capabilities of the Nintendo 64 system 100 could be incorporated into the Gameboy (portable game machine 400 in Fujimoto). Linking Nintendo 64 system 100 to Gameboy 400 as shown in Fujimoto, cannot confer 3-D capabilities to Gameboy 400 because communication cable 200 transfers only data between 3-D system 100 and portable system 400 and does not transfer 3-D capability in Fujimoto '433. Neither Miyamoto '433 nor Fujimoto '291 show, describe, or remotely suggest 3-D capability in a portable game system such as a Gameboy.

3-D capability for the Nintendo 64 in Miyamoto '433 is provided by 3-D graphics coprocessor 200 which is described in greater detail in US patent 6,239,810 (Van Hook et al). Van Hook '810 does not show, describe, or remotely suggest that 3-D graphics coprocessor 200 could be used in a portable game system such as a

Gameboy. In Van Hook '810 there is no mention of "Gameboy" or "portable game" or "LCD" or "battery" that would suggest portability, an essential element of applicant's claim 513. To the contrary, Van Hook teaches away from portability in column 5 lines 24–28:

"The user also needs to connect main unit 52 to a power source. This power source may comprise a conventional AC adapter (not shown) that plugs into a standard home electrical wall socket and converts the house current into a lower DC voltage signal suitable for powering main unit 52."

The Gameboy 400 shown in Fujimoto '291 is a portable game system that contains an "LCD processor 433" that is described in column 7 lines 45–50 and 61–67. This LCD processor 433 is not a 3-D graphics processor as suggested in the last Office Action, but rather processes sprites as described in US patent 6,315,669 (Okada et al) in column 1, lines 37–39 and 48–51 as follows:

"The graphics of the GAMEBOY are created from blocks of pixels known as characters... Objects are groups of character data that are used to represent the main game character and other moving objects that overlay the background in a game. Objects are sometimes referred to as "sprites".

3-D graphics is a technology that originated in the 1970's and encompasses several subclasses under USPTO class 345. Sprite processing (USPTO class/subclass 345/683) is technology that is distinct from the 3-D graphics process described in Fujimoto '291, Miyamoto '433, and Van Hook '810. There is no mention of "sprite" or "sprites" in either Miyamoto '433 or Van Hook '810 which generate 3-D graphics, not 2-D sprites.

The Gameboy described in Fujimoto '291 was designed to generate pictures using sprites for display on small portable LCD screens and was not designed to produce 3-D graphics in the sense used in Miyamoto '433 and Van Hook '810 in connection with the Nintendo 64. Generating 3-D animated characters with plural body parts using 3-D graphics in a Gameboy was therefore far from obvious prior to applicant's filing date from the combined teachings of Fujimoto '291, Miyamoto '433, Okada '669, and Van Hook '810.

The words "3D", "3-D", "dimension", "perspective", "point of view", "POV", "viewpoint", "camera angle" and other indicia of three-dimensionality are not used in Fujimoto '291 or Okada '669. Wherever these terms are used in Miyamoto '433 or Van Hook '810, they are used only in connection with display on a TV screen, not on a portable game system LCD device. Examples of 3-D graphics on portable LCD devices are not shown, described, or remotely suggested in Fujimoto '291, Miyamoto '433, Okada '669, or Van Hook '810.

Applicant therefore submits that claim 513 and claims dependent thereon were not obvious on applicant's filing date in view of the combined teachings of Fujimoto '291, Miyamoto '433, and Van Hook '810 and hence are allowable over those references.

In the Office Action dated September 7, 2004, the Examiner rejected claims 375–512 under 35 USC 103, as being unpatentable over the combined teachings of Fujimoto '291 and Miyamoto '433 in view of Sawano et al (US 6,544,126).

Sawano '126 teaches a video game machine (14) such as a Gamecube that is digitally linked to a portable game machine (12) such as a Gameboy or Gameboy Advance (12A–12B). 3-D graphics and a 3-D graphics engine are described for the Gamecube in columns 6 and 8. Sawano '126 is silent regarding touch screens.

According to the Examiner, it would have been obvious to utilize the 3-D capabilities of the Gameboy in the light of the combined teachings of Fujimoto '291, Miyamoto '433 and Sawano '126, so that character actions will not be revealed to other players.

As indicated by the Examiner, Sawano '128 in column 6, lines 32–49 suggests that

“some 3D-capabilities are also possible depending on the software being used.”

However, this clause does not suggest the claimed invention because merely changing the software to allow some 3-D capability does not suggest going all the way to 3-D generation of 3-D animated characters with plural body parts moving in a 3-D game world as required by applicant's claim 513. Wherever 3-D is mentioned in Sawano '128, other than in column 6 line 48, the 3-D graphics are for display on a TV screen (50), not on an LCD screen (24). Hence, combining the teachings of Sawano '128 with Fujimoto '291 or Miyamoto '433 would not provide any guidance in designing a portable game system that generates 3-D animated characters with plural body parts moving in a 3-D game world as required by applicant's claims.

In Sawano '126, the expression "3D" is mentioned in four phrases:

column 5, line 52 "GAMECUBE 3D video game system"

column 6, lines 57–58 "the games played by portable unit 22 [GameBoy] are
2D games but some 3D-capabilities are also possible"

column 6, lines 62–65 "video game machine 14 [GameCube] ... may be a 3D video
game play system with advanced 3D graphics"

column 8, lines 5–6 "video game machine 14 [GameCube] has a CPU 78
including a 3D graphics engine"

Except for lines 57–58 which suggest that some 3-D capabilities are possible, all other references to 3D in Sawano '126 are for TV display. None of the drawings in Sawano '126 illustrate 3-D graphics on LCD screen 24. Stick figures are illustrated in Figures 13A–13D for LCD display, but these are not player-controlled characters, are not 3-dimensional, and are not generated in a 3-D game world, as required by applicant's claim 513.

In Sawano '126, portable game machine 12 (Fig. 2) is identified in column 5, lines 48–50 as a "GAME BOY or GAME BOY ADVANCE" and linked Gameboy Advance units 12A–2B are illustrated in Fig. 10. The internal structure of CPU 66 (Fig. 2) for a Gameboy Advance is not specified in Sawano '126, but is described in detail in US 2004/0053691 (Kawase). In Kawase '691, a Gameboy Advance is illustrated in Fig. 1 and is identified as such in paragraph [0049] in '691. The image co-processor in the Gameboy Advance (1) in Kawase '691 is a sprite processor and is not shown or described as generating 3-D images in Sawano '126, or in Kawase '691, or in any of the cited references.

According to block diagram Fig. 2 in Kawase '691, the Gameboy Advance sprite co-processor consists of background (BG) process unit 210, object (OBJ) process unit 212, and image synthesis process unit 213 which drives LCD 11. Paragraph [0056] in '691 refers to "the hand-held game machine 1 [which] performs a so-called sprite process by using the BG process unit 210 and the OBJ process unit 212 to generate a game image." Figures 6, 8, and 18 clearly illustrate sprites. The characters depicted in Figures 5A, 5B, 11A, and 11B appear flat because they are generated by "a so-called sprite process" in the Gameboy Advance.

The words "3D" or "3-D" or "viewpoint" or "point of view" do not appear in Kawase '691 or in several other Nintendo US patent applications that describe the Gameboy Advance, such as 2004/0110563, 2004/0106456, and 2004/0087369.

Moreover, the words "3D" or "3-D" or "viewpoint" or "point of view" are not mentioned even once in two Internet web sites that provide very detailed technical descriptions of the Gameboy Advance. These web sites describe Gameboy Advance hardware interrupts, BIOS calls, graphics modes 0 through 5, bit-by-bit descriptions of the Program Status Register and color palette RAM, and a section on Sprites: "The GBA supports 128 simultaneous sprites. These can be up to 64x64 pixels in size. The OAM, which starts at 0x07000000, has one entry for each of the 128 sprites." Then follows a description of sprite attributes bit-by-bit for more than 3 pages, but there is no mention of 3-D graphics anywhere in the two documents.

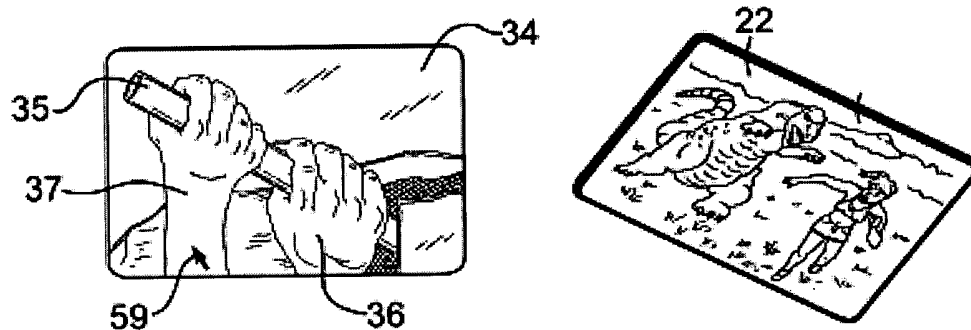
These Gameboy Advance documents may be found at:

www.jharbour.com/gameboy/GBA_02.pdf and

www.cs.rit.edu/%7Etjh8300/CowBite/CowBiteSpec.htm

Sprites are clusters of pixels in 2-dimensional arrays and do not suggest 3-D animated characters which are essential elements of applicant's claim 513. It was not obvious on applicant's filing date to generate 3-D animated characters in a portable game system designed for generation of 2-D sprites.

Unlike the sprite objects illustrated in Figures 9(A) and 9(B) in Fujimoto '291 which are rectangular tiles for display on the portable LCD (401), applicant's "characters" resemble people or animals or monsters or their body parts such as hand 37 displayed on portable LCD screen 34 or 22, as illustrated in applicant's Figures 2-4:



These animated characters and their body parts may be generated using polygon graphics according to applicant's page 16, lines 11-12 and 21-22: "Fig. 11 shows hand 37 shaped as a fist ... The polygons which form the image of hand 37 on LCD 22 are then modified by microprocessor 50". Polygons are not mentioned in Sawano '126 or in Kawase '691 which specifies in paragraph [0056]: "the hand-held game machine 1 performs a so-called sprite process".

The combination of Sawano '126, Fujimoto '291, and Miyamoto '433 suggested by the Examiner would therefore fail to teach the suggested "3-D capabilities of the Nintendo Gameboy" because of lack of enabling disclosure in Sawano '126.

Applicant's claim 513 is limited to 3-D animated characters in 3-D game worlds for display on a portable game system LCD. This improvement to the Gameboy was not obvious on applicant's filing date.

As stated in Ex parte Levengood, 28 U.S.P.Q.2d 1300 (P.T.O.B.A.&I. 1993), the Patent and Trademark Office "can satisfy the burden of establishing a *prima facie* case of obviousness only by showing some objective teaching in either the prior art, or knowledge generally available to one of ordinary skill in the art, that would lead that individual to combine the relevant teachings of the references."

There are no relevant teachings regarding Gameboy 3-D graphics in Sawano '126, either alone or in combination with the other references. Instead, Sawano '126 merely expresses that "some 3D-capabilities are also possible".

The combined teachings of Fujimoto '291, Miyamoto '433, and Sawano '126 provide no more than Sawano's hope for 3-D in the Gameboy and do not provide "relevant teachings" for use of complete 3-D graphics in a Gameboy.

Therefore, applicant submits that generation of 3-D player characters in a Gameboy in simulated 3-D game worlds was not obvious in the suggested combination of Fujimoto '291, Miyamoto '433, and Sawano '126, in which 2-D sprites, not 3-D graphics, are used for player characters in the Gameboy.

If generating 3-D animated characters for display on a portable LCD game system were obvious to '291, '433, or '126 co-inventors, why did they not provide even one example in the drawings? This would be a strange omission if it were obvious to use

3-D graphics on a portable LCD screen in the manner described by Miyamoto '433 for display on a TV screen.

In Miyamoto '433 and several other patents, Miyamoto illustrated 3-D animated characters with plural body parts such as Mario (Fig. 27E) generated by the Nintendo 64 for display on a TV screen. But in US patent application 2002/0165028 that has a priority date of May 2, 2001, only 8 days prior to applicant's filing date, when Miyamoto, the game expert who invented Mario, chose examples in Fig. 9(c) of "characters" for display on an LCD device on a Gameboy Advance, he chose simple non-animated geometric objects instead of his Mario as illustrative characters:

(C) CHARACTER DATA FOR PORTABLE GAME MACHINE



Unlike Mario, the geometric objects illustrated in Fig. 9(c) are not animated and have only one body part. They have no face, arms, legs, and other body parts that indicate an animated character. In Miyamoto '028, non-animated geometric objects are generated as sprites. If it were obvious to generate people and other full bodied animated player characters for display on portable game systems, why did Miyamoto choose non-animated geometric sprite objects that have only one body part instead of his animated Mario character?

Clearly, it was not obvious to Miyamoto or his co-inventors to generate 3-D animated player characters with plural body parts for display on portable game systems designed for 2-D sprites when linked to a console game system that does generate 3-D animated player characters with plural body parts for display on TV screens.

Therefore, applicant submits that claim 531 defines an invention that was not obvious to game experts at the time of applicant's filing date.

It may be objected that the present application does not use the expression “3-D character” or “three-dimensional character.” However, the characters referred to in the application are clearly 3-dimensional, because they are generated as picture data (pixels) that, for example, are rendered from “polygons which form the image of hand 37 on LCD 22 [which] are then modified by microprocessor 50 (Fig. 4) to show hand 37 grasping pipe 35 on LCD 22” as specified on applicant's page 16 lines 21–24. In the next sentence in lines 24–27 the application refers to “corresponding polygons which form the image of hand 37 in the generated video images displayed on TV 11”. The TV characters are 3-dimensional, and therefore the LCD characters generated from corresponding polygons are also 3-dimensional.

In the last Office Action, the Examiner objected to the limitation of incorporating the use of a touch screen in claims 409–412, 415, 418–420 and other dependent claims, a feature that was presented by applicant in the background of invention section of the present application. A touch screen in a handheld game controller is disclosed in a prior art Sega application JP 06-285259 (Murata '259).

Applicant's independent claim 513 incorporates use of a touch screen to control movement of a simulated object displayed on a portable game system LCD screen. Even if, for the sake of argument, teachings of Murata '259 were combined with teachings of Fujimoto '291, Miyamoto '433 and Sawano '126, there is no suggestion

in any of these references that a touch screen would control simulated 3-dimensional objects displayed on a portable game system. To the contrary, Murata '259 teaches a touch screen in a video game controller 10 that is not operated independently of video game console 15 and is therefore not a portable game system as required by applicant's claim 513.

Applicant submits that independent claim 513 is allowable over the combined teachings of Fujimoto '291, Miyamoto '433, Sawano '126, and Murata '259.

In the last Office Action, the Examiner objected to some dependent claims because of limitations that were taught by Fujimoto '291, Miyamoto '433, and/or Sawano '126. Applicant submits that use of these limitations is moot because pending independent claims are allowable over the combined teachings of Fujimoto '291, Miyamoto '433, Sawano '126, and Murata '259, for reasons that were argued above and do not rely on limitations in dependent claims.

The cited references illustrate how game experts overlooked the present invention because they regarded a data linked portable game system as an LCD-equipped controller of the linked console game system. In US patent 6,132,315, column 11, lines 60–62, Miyamoto said: “the game play ... may be implemented by using the first-machine” [GameBoy] “in place of the controller”. As long as they regarded a linked Gameboy as an LCD-equipped controller, they overlooked the possibility of displaying 3-D animated player-controlled characters on portable LCD screens in linked Gameboys.

A more recent example of this mindset may be found in Aonuma (2003/0216177) which shows 3-D characters in Figures 5 and 6 for display on a TV screen, but belittles the LCD screen as “a 2-D map screen.” Aonuma refers to the LCD screen as “the 2-D map screen” 38 times, as if portable LCD screens were necessarily limited to 2-D graphics such as maps. Aonuma mentions “3-D object” or “3-D game screen” in paragraphs [0024], [0033], [0063], [0066], [0077], [0078], [0081], [0082], [0097], and other paragraphs, but only in connection with display on a TV screen. Aonuma does not show, describe, or remotely suggest 3-D viewpoints, 3-D camera angles, or 3-D characters on LCD 41. Aonuma’s priority application was filed on May 17, 2002, more than one year after applicant’s filing date. Applicant’s invention was still not obvious one year after applicant filed his application.

Because portable game systems were stereotyped as LCD-equipped controllers and map screens in linked systems, the possibility of portable game systems providing auxiliary displays of full bodied animated 3-D characters was overlooked. The long-standing assumption in the prior art that portable game systems would not generate 3-D animated characters when linked to video game systems that do generate 3-D animated characters, is evidence that applicant’s invention was not obvious.

None of the cited references show, describe, or suggest that an LCD in a portable game system should display 3-D animated player characters with plural body parts. In stark contrast, applicant’s specification provides numerous illustrations of 3-D animated characters and other 3-D objects generated for display on the portable LCD. For example, Figures 1, 2, 3, 7, 8, 11, 15, and 22. Moreover, use of a touch screen to move 3-D objects on a portable game system LCD was not shown, described, or remotely suggested in any of the cited references.

Generating 3-D animated characters with plural body parts on LCD screens in linked portable game systems was not suggested in the cited prior art because applicant's invention was not obvious to video game experts. The further use of a touch screen in the novel manner defined in applicant's claim 513 makes the claimed invention even less obvious prior to applicant's filing date.

Applicant's invention is classified in a crowded art and therefore the novel, non-obvious improvements defined by the present pending claims should be regarded as significant.

Arguments directed above to claim 513 may also be directed to independent claims 552, 585, and claims dependent thereon.

Applicant's invention alone achieves the realism of 3-D animated characters with plural body parts in 3-D game worlds in linked portable game systems. For the above reasons, applicant submits that the present pending claims define an invention that is novel, non-obvious, and a significant advance over the prior art.

Summary

1. None of the cited references suggest features uniquely claimed by applicant, namely, generating 3-D animated characters with plural body parts for display on an LCD in a portable game system.
2. Combining the teachings of the cited references would not result in the game system defined by applicant's claims.
3. Applicant's invention uses portable game systems in a new way that was not shown, described, or suggested in the prior-art.
4. Applicant's invention was not obvious to game experts at the time applicant's application was filed.
5. 3-D video games are a crowded art and therefore applicant's unanticipated step forward is significant.

Applicant submits that the present pending claims are allowable and a favorable decision is respectfully requested.

Respectfully submitted,

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